

15¢

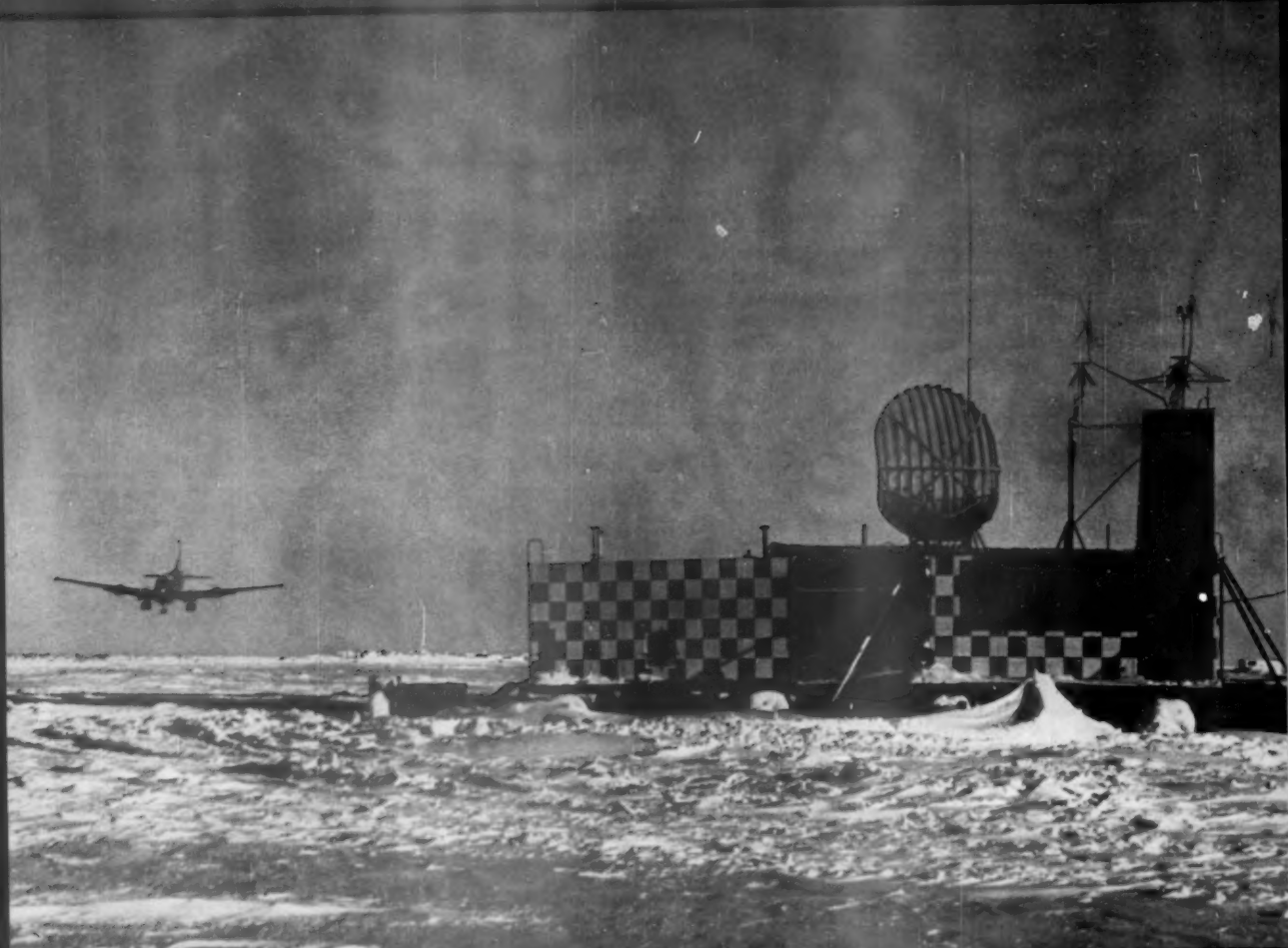
\$5.50 A YEAR

June 18, 1955

VOL. 27, NO. 25 PAGES 388-409

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Airlift to DEW Line

See Page 395

A SCIENCE SERVICE PUBLICATION

KEN KITS for everyone interested in Uranium and Atomic Energy

EACH KIT IS UNCONDITIONALLY GUARANTEED OR MONEY PROMPTLY REFUNDED

THE PROFESSIONAL MODEL GEIGERSCOPE

Optical uranium and radio-activity detector. Now in use in hundreds of laboratories, in industry, atomic energy plants and major universities. More sensitive for use on radioactive samples or mineral specimens than any portable electronic instrument, regardless of price. Sturdy, durable, portable as a pocket watch. Requires no power source because it converts the energy of alpha rays directly into visible signals; no background count. Detect and measure any alpha-active isotope down to the range of a millionth of a microcurie. Detects leakage from X-ray machines, contamination of air, surfaces, hands, apparatus, not revealed by conventional instruments. Measure radioactive fallout from distant nuclear explosions. Invaluable for anyone interested in radioactivity. Supplied complete with calibrated radium standard, uranium ore sample, direction sheet and air-tight holster.



\$5

KEN ULTRA VIOLET FLASHLIGHT

Our research staff has now developed a completely portable ultra violet light for the use of the uranium prospector. Compact, sturdy and rugged and operates on ordinary flashlight batteries. The powerful beam will cause fluorescent uranium minerals to glow at a distance of ten feet. Complete except for batteries so you can use fresh ones from your local store. Data sheet lists fluorescent minerals. JUST THE THING FOR THAT NEXT FIELD TRIP.

\$3



KEN BEAD TEST KIT

The sodium fluoride bead test is one of the most sensitive for detecting and confirming uranium minerals. It enables you to distinguish between uranium and thorium. The vial of pure sodium fluoride meets ACS specifications, enough for hundreds of tests. The bead holder is of PLATINUM wire, permanently sealed into a heat-insulating handle; forceps are provided. All attractively packed in a convenient case that you can slip into your pocket. Complete with direction sheet.

Only \$2



KEN RADIOACTIVE ORES SPECIMEN KIT

For comparison or display purposes. Four rich mine samples from different parts of the country are attractively packed in a pocket size clear plastic box. They contain all five of the commercially important radioactive ores. Complete with data sheet giving the identifying characteristics and mineralogical properties.

Only \$2

SHORT WAVE ULTRA VIOLET BULB

An inexpensive source of short wave ultra violet radiation. Excites fluorescence in tungsten ores, carbonates and other minerals which do not react to long wave UV. Complete with special socket, simple wiring diagram anyone can follow, direction and data sheet.

\$3

KEN CALIBRATED RADIUM STANDARD KIT

This kit contains five permanent standards for the testing and calibration of any counter, scintillator, ionization chamber, Geigerscope or any other radioactivity detector. They cover the range from 100 to 1,000,000 disintegrations per minute. Complete with accessories and data sheet giving the certified alpha, beta and gamma activities of each of the five standards.

\$5

ATOMIC PROSPECTOR'S HANDBOOK

Valuable data on radioactive ores, field, lab and mill methods, and map. Everything you need know about this vital new field! Send for Handbook today!

Only \$1

KEN RESEARCH INC.

831 FIFTH AVENUE, RIVER EDGE 2, N. J.

Gentlemen: I enclose \$_____ in (cash) (check) (money order). Rush the items I have checked below. Each item will be sent postpaid and with an unconditional money-back guarantee.

QUANTITY	ITEM
()	Professional Model Geigerscope @ \$5.
()	Ken Calibrated Radium Standard Kit @ \$5.
()	Ken Radioactive Ore Specimen Kit @ \$2.
()	Ken Atomic Prospector's Handbook @ \$1.
()	Ken Bead Test Kit @ \$2.
()	Short Wave Ultra Violet Bulb @ \$3.
()	Ken Ultra Violet Flashlight @ \$3.

Ship them immediately to:

Name _____

Address _____

City _____ State _____



831 FIFTH AVENUE

RIVER EDGE 2, N. J.

MEDICINE

Link Smoking and Cancer

To escape lung cancer risk, male heavy smokers are advised to quit now. Survey shows heavy drinking increases chances of cancer of the larynx among heavy smokers.

► IT IS not too late for the man who has been a heavy cigarette smoker to escape the risk of lung cancer. His chances of getting the disease are very greatly reduced if he stops smoking now.

The American Cancer Society gave this bit of more cheerful news in its grim picture of the statistical relation between lung cancer and tobacco.

The report was given by Drs. E. Cuyler Hammond and Daniel Horn at the opening meeting of the American Medical Association in Atlantic City, N. J. It covers the first 32 months of study of the smoking habits and fate of 188,000 white men between the ages of 50 and 70.

A total of 8,105 of the men were reported to have died up to Nov. 1, 1954. Of these, 168 cases proved by tissue study to be bronchogenic cancer. That is the kind of lung cancer that starts in the breathing tubes in the lung and is the commonest kind of lung cancer.

Among the 168 lung cancer cases, the death rate among those who smoked two packs a day of cigarettes was about 90 times as high as it was for those who had never smoked. Only two bronchogenic

cancer cases were found among those who were non-smokers.

The rate for those who had quit smoking when the survey started was 14 times as high as for non-smokers, but only about one-half the rate for those who smoked less than one pack a day when first questioned. About half of the ex-smokers had been one-time light smokers. These had about the same lung cancer death rate as those who had never smoked.

Those who smoke less than a pack a day and are still smoking run about one-third the risk of lung cancer death as those who smoke two or more packs a day.

Lung cancer death rates are high among cigarette smokers and low among non-smokers regardless of whether they live in rural or urban areas.

Cigar smokers apparently run no risk of lung cancer. Pipe smokers do, but to a far less degree than cigarette smokers.

"A majority" of cancer researchers, chest surgeons and pathologists who examine lung tissue after death are of the opinion that heavy cigarette smoking may lead to lung cancer, Dr. Charles S. Cameron of the American Cancer Society reported on

the basis of a society questionnaire to about a thousand of these medical specialists.

Thickened Vocal Cords

► THE SURFACE tissue in the vocal cords is thickened in heavy smokers. There is some water swelling in their voice boxes, an infiltration of abnormal cells, and an abnormal change in the tissues, called metaplasia.

These findings from post mortem examination of the larynx, or voice box, in heavy smokers were reported by Drs. Robert F. Ryan, John R. McDonald and Kenneth D. Devine of the Mayo Clinic and Foundation, Rochester, Minn., at the AMA meeting.

They classed as heavy smokers anyone who smoked several cigars or at least one package of cigarettes a day.

No sign of cancer was found in any of the larynxes of either smokers or non-smokers.

The differences in larynxes of smokers and non-smokers were mostly "matters of degree," the doctors reported.

In examinations of 40 voice boxes of men whose smoking history was not known, the doctors were able to make 31 correct judgments as to whether the larynx came from a smoker or a non-smoker.

Lung and Larynx Cancer

► THE PRESENT rates of lung and larynx (voice box) cancer in American men "probably" would be reduced by 80% if American men did not smoke, scientists of Sloan-Kettering Institute, Memorial Center for Cancer and Allied Diseases, New York, declared at the AMA meeting.

Heavy drinking apparently adds to the risk of cancer of the larynx run by men who are heavy smokers.

Cancer of the larynx is 10 times more common in men than in women in the United States and makes up about two and one-half percent of all cancers among men.

Scientists reporting these findings are Drs. Ernest Wynder, Irwin J. Bross and Emerson Day. They came from interviews and questionnaires of 550 male patients, 209 of whom had cancer of the larynx, 132 who had lung cancer (studied for comparison) and 209 matched controls.

Over 100 factors were studied, including diet, voice strain, industrial exposure, dental hygiene, tuberculosis, syphilis, and X-ray to the neck. These had previously been suspected by investigators as playing a role in larynx cancer development. Medical, surgical, social and family histories were also taken.

Only one of the men with larynx cancer was a non-smoker, as compared to 22 in the control group. A direct relationship was found between the amount smoked and the "relative risk" of developing larynx cancer. As compared to the group who smoked 16 to 34 cigarettes a day, the man who smokes 1 to 15 cigarettes is 50% less likely to develop cancer of the larynx, and the



CONVERTED SEARCHLIGHT—This 60-inch searchlight mirror has been converted into a solar furnace by engineers of the Convair Division of General Dynamics Corporation. When stripped of the arc lighting mechanisms and glass covers, the searchlights make efficient solar furnaces for high-temperature testing of metals used in aircraft and missiles.

man who does not smoke at all is 90% less likely to develop the disease, while the man who smokes more than 35 cigarettes runs twice the risk. Cigar and pipe smokers were found to run approximately the same risk as the smoker of 16 to 34 cigarettes.

Men who consumed more than six ounces of whisky a day were found to be seven times as likely to develop larynx cancer as non-drinkers who smoked approximately the same amount, that is, more than 16 cigarettes a day. No significant differences in relative risk were found among those who smoked the same amount but who did not drink at all, who drank beer or wine or who drank six ounces or less of whisky a day.

The investigators advanced the theory that while heavy use of tobacco may cause or initiate larynx cancer, they believe heavy alcohol intake enhances the tobacco's effect probably by making the tissues more susceptible. This theory is based on the fact that although the risk becomes greater for the heavy smoker who drinks more than six ounces a day, there is no difference in risk for those who drink varying lesser amounts.

More cigar and pipe smokers were among the larynx cancer group than among the lung cancer group. Alcohol was found not to be a factor in the development of lung cancer.

Science News Letter, June 18, 1955

PSYCHOLOGY

Promotion May Cut Ideas

▶ A YOUNG man is often rewarded for an outstanding achievement by promoting him to an important executive position.

The wisdom of doing this was questioned by Dr. R. H. Felix, director of the National Institute of Mental Health, in *Science* (June 3). Dr. Felix himself has just passed his 51st birthday.

Taking a young man from the ranks of the doers and putting him in an administrative job may rob the world of creative ideas, Dr. Felix pointed out. Scientific studies have shown that novel and significant ideas are developed at an early age.

"Shortening of the period for the kind of work in which novel ideas develop is not the ideal way to cultivate creativity," he said.

At the same time, the executive post might be better filled by a mature person, he indicated.

"A mature leader," he said, "is generally a constructive person who has experienced the various development phases. His goals are clear, his thinking is realistic. . . . The working climate under such a person is generally very wholesome. He cultivates the talents of his group and, in turn, graciously accepts their support.

"When crises arise, they are met with a minimum amount of over-reaction and contagious disturbance.

"Much of the popular thinking about the deterioration of abilities with age simply

MEDICINE

Try Drugs After Surgery

▶ IN THE future doctors may give cancer patients doses of radioactive gold or other radioactive chemicals after the cancer has been removed by operation or destroyed by X-rays or radium.

This treatment might save lives now lost to cancer "seeds" that spread through the body to kill even when the original cancer has been destroyed.

The new treatment was suggested by Dr. Horace Goldie of Meharry Medical College, Nashville, Tenn., on the basis of mouse studies by himself and associates.

The studies showed that cancers kill the animal mainly by one of two means: 1. they break blood vessels and cause fatal hemorrhage; or 2. they eat away vital organs like the liver, lung or pancreas and destroy their essential functions.

The size of the cancer, Dr. Goldie says, is not as important as its site. Cancer spread is a more dangerous enemy than cancer growth. The unpredictable damage to vital organs and death are caused by seeds (metastases) that escape from the original tumor to establish hidden colonies in distant parts of the body.

These cancer "seeds" can be overtaken

and destroyed in the mice by such chemicals as radioactive gold, chromic phosphate or yttrium phosphate. Normal cells are not harmed by the radioactive substances in doses that killed the cancer cells.

White blood cells, the body's scavenger cells, could carry the radioactive chemicals, usually without apparent injury to the white cells, a report from the American Cancer Society, which supports Dr. Goldie's research, stated.

Science News Letter, June 18, 1955

SCIENCE NEWS LETTER

VOL. 67 JUNE 18, 1955 NO. 25

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N. St., N. W., Washington 6, D. C., North 7-2253. Edited by WATSON DAVIS.

Subscription rates: 1 yr., \$5.50; 2 yrs., \$10.00; 3 yrs., \$14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

Copyright, 1955, by Science Service, Inc. Reproduction of any portion of SCIENCE NEWS LETTER is strictly prohibited. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service. Science Service also publishes CHEMISTRY (monthly) and THINGS of Science (monthly).

Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C., under the act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for by Act of October 3, 1917, authorized February 28, 1950. Established in mimeographed form March 19, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Reader's Guide to Periodical Literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Hawland and Howland, Inc., 1 E. 54th St., New York 22, Eldorado 3-5666, and 435 N. Michigan Ave., Chicago 11, Superior 7-6048.

SCIENCE SERVICE

The Institution for the Popularization of Science organized 1921 as a non-profit corporation. Board of Trustees—Nominated by the American Association for the Advancement of Science: Kirley F. Mather, Harvard University; Paul B. Sears, Yale University; Karl Lark-Horowitz, Purdue University. Nominated by the National Academy of Sciences: Edward U. Condon, Berkeley, Calif.; Harlow Shapley, Harvard College Observatory; George W. Carver, Carnegie Institution of Washington. Nominated by the National Research Council: Ross G. Harrison, Yale University; Leonard Carmichael, Smithsonian Institution; Jerome Hunsaker, Massachusetts Institute of Technology. Nominated by the Journalistic Profession: Neil H. Swanson, Ruxton, Md.; O. W. Riegel, Washington and Lee University; Michael A. Gorman, Flint Journal. Nominated by the Scripps Estate: Edward J. Meeman, Memphis Press-Scimitar; John T. O'Rourke, Washington Daily News; Charles E. Scripps, Cincinnati, Ohio.

Officers—President: Leonard Carmichael; Vice President and Chairman of Executive Committee: Charles E. Scripps; Treasurer: O. W. Riegel; Secretary: Watson Davis.

Staff—Director: Watson Davis. Writers: Jane Stafford, Marjorie Van de Water, Ann Ewing, Howard Simons, Edward Housman. Science Clubs of America: Joseph H. Kross, Margaret E. Patterson. Photography: Fremont Davis. Sales and Advertising: Hollie Jenkins. Productions: Priscilla Howe. Interlingua Division in New York: Alexander Gode, Hugh E. Blair, 80 E. 11th St., Gramercy 3-5410.

METEOROLOGY

Miniature Tornadoes Made in Small Box

▶ A WEATHER Bureau meteorologist is making miniature tornadoes in a small box in the hope of learning more about what causes "twisters."

Dr. Neil B. Ward of the Bureau's Fort Worth, Tex., office told the American Meteorological Society meeting in Kansas City, Mo., of his experiments with baby tornadoes of various sizes.

He controls the whirlers' sizes by changing the area of the diaphragm in the top of the box through which the air is evacuated to form the tornado. Talcum powder is used to make the funnel visible.

Scientists have made tornadoes in miniature off and on for the last 50 years. Dr. Ward's model differs from previous ones in that he controls the size of the evacuating diaphragm.

Science News Letter, June 18, 1955

MEDICINE

Death of Heart Bits

Enzyme test shows whether tiny pieces of a heart have died after a non-fatal heart attack. Death of liver tissue after poisoning and jaundice also revealed.



GREATEST OCEAN DEPTH—This picture reveals how the ocean bottom looks 20,800 feet under the surface, the greatest ocean depth ever photographed. It was made in the Sargasso Sea, approximately 1,000 miles seaward of Cape Hatteras, N.C., by Navy Hydrographic Office scientists. The picture reveals a blank mud bottom, pocked with holes made by unidentified marine creatures. The dark object is part of the light source used for making the photograph.

GENERAL SCIENCE

U. S. Research Policy Allows Soviet Challenge

► **RUSSIA'S SERIOUS** challenge to the West's lead in the armaments race is in great part due to de-emphasis of pure scientific research in the United States, Dr. John Green, head of the aeronautics division of the Canadian Defense Research Board, said.

Aviation history is marked by spurts of progress following discoveries by the "ivory tower" scientists. Development of the principles of streamlining and jet engines are examples of such research. Refinement of design by engineers, he said, is popularly confused with pure research. Engineers can only produce a slow, steady progress.

He urged more large grants to top scientists with no strings attached so they can spend their time on theory.

The next big advances in aviation will come in the fields of boundary layer control and sharp angle take-offs, Dr. Green told the Aviation Writers Association meeting in Toronto.

Boundary layer control is a system to increase the buoyancy of airplanes.

Science News Letter, June 18, 1955

► A **BLOOD** test showing in three or four minutes whether bits of the heart have died after a heart attack was reported by Drs. John S. Ladue and Felix Wroblewski of Sloan-Kettering Division of Cornell Medical College and Memorial Center, New York, at the American Medical Association meeting at Atlantic City, N. J.

The test also shows whether bits of heart have died in an attack of rheumatic fever.

Death of liver tissue in such conditions as carbon tetrachloride poisoning and two kinds of jaundice, or hepatitis, are also revealed by this test.

It is not a test of the function of these organs and does not show infections or cancer unless these have caused acute damage to heart, skeletal muscle, liver or kidney.

The test is for an enzyme called GO-T, short for glutamic oxaloacetic transaminase. This enzyme is concerned with transfer of nitrogen in the formation of the amino acid, glutamic acid. Besides being found in heart, muscle, brain, liver and kidney tissue, the enzyme shows in the blood serum.

To make the test, serum is mixed with the chemicals the enzyme normally transforms when tissues are injured. GO-T activity decreases in the injured tissue and increases proportionately in the blood serum. So when the test shows an increase of GO-T activity in blood, it is a sign of tissue injury or death.

When patients are given "frozen sleep," or hypothermia, for operations inside the heart, they can be quickly warmed to normal by diathermy. Use of these very short waves that penetrate deep within the body is one feature of hypothermia used by Dr. Henry Swan and associates at the University of Colorado Medical School, Denver.

Another measure they showed at the meeting was giving neostigmine to prevent the dangerous heart jitters, called fibrillation, which is sometimes a complication in hypothermia.

Successful Grafting

► A **KIND** of vaccination process makes possible successful grafting of tissues from a donor, in mice at least. The method is to inject, before the grafting, suitable preparations of tissue or antisera in the tissues to be grafted. This apparently gets the body used to the foreign tissue to be grafted and so prevents the "hostile" reaction to the graft that keeps it from taking. The method was shown by Dr. George D. Snell and associates of Jackson Memorial Laboratory, Bar Harbor, Maine.

Apparently children are more susceptible to injury from radioactive fallout after an A- or H-bomb explosion, Comdr. Robert A. Conrad, Naval Medical Research Institute, Bethesda, Md., reports.

This finding came from study of the 239 Marshallese and 28 Americans accidentally exposed to radioactive fallout after a nuclear explosion test in March, 1954.

Six-month follow-up studies showed all exposed persons had recovered.

Eating or inhaling material exposed to fallout did not seem to be a long term hazard. Exposure seemed to have no effect on pregnancy.

Skin cancer may later develop in these people because many were young, giving more time for cancer to develop, and they were exposed to tropical sunlight for long periods. However, the Navy doctors who studied them point out that the original skin damage from the fallout was superficial, making cancer development seem less probable.

Sterility Overcome

► A **SMALL** group of sterile men who were not helped by other treatment improved in fertility when given heavy doses of male sex hormone, Dr. Charles W. Charny of the Albert Einstein Medical Center, Philadelphia, reported at the meeting of the American Medical Association in Atlantic City, N. J.

The doses of male hormone given for four months were so heavy that they depressed the sperm-forming function of the reproductive organs. The hormone treatment was then stopped and in the successful cases there was a "rebound" about four or five months later at which time sperm production started again, at a level greatly above that before treatment.

Of 92 men reported on, 17 had sufficient improvement to be considered "greatly benefited." Wives of five became pregnant.

So far Dr. Charny has treated 152 infertile men, but data on all but 92 were too incomplete to report.

Although the group is small, Dr. Charny said the "salvage" could be considered impressive since most of the men had either been treated unsuccessfully before or had been excluded from treatment because none was available.

Science News Letter, June 18, 1955

The *badger*, like the skunk, has a scent gland that can be fired by raising its stubby tail, but the odor is not nearly as offensive and is not used for defense as much as for courtship.

PHYSICS

Link Relativity, Chance

Two ideas once thought incompatible, Einstein's special theory of relativity and the laws of chance, are tied together in a "general theory of probability."

► EINSTEIN'S SPECIAL theory of relativity is now linked to the laws of chance. The new concept ties together two ideas previously thought irreconcilable.

Formulated by Dr. Nicholas M. Smith Jr. of Johns Hopkins University's Operations Research Office, Chevy Chase, Md., it can be called a "general theory of probability."

It is not one with which the late Prof. Albert Einstein would have agreed. He did not believe that the laws of chance could be used to describe physical events, either in the atomic world or in the cosmos.

Under Einstein's relativity theory, the hands of a clock in a speeding jet plane move infinitesimally slower than those on a wall clock. Under Dr. Smith's general theory of probability, a clock in a very fast-moving system would be expected to slow down but not at a uniform rate. It would slow down with the "jitters," sometimes keeping time faster, sometimes slower, according to chance.

Dr. Smith, in outlining his theory at the meeting of the Operations Research Society of America in New York, reported that he derived it from a study of the rational processes involved in making military decisions.

He showed that there is a general form of the theory of probability which, when special restrictions are applied, can reproduce the same laws now used in physics, as

well as those of psychology, sociology and ethics.

Dr. Smith's generalizing principle is called "the principle of analogical conformity." He found that values or moral judgments have differing degrees of reality depending on their usefulness in rational processes.

Space-time are inextricably interwoven in Dr. Smith's four-dimensional theory as they are in Einstein's. An illustration of this, he said, might occur in a checker game when the probability of "the next move" being one space "to the right" would have a certain value. "The next move" is the time element and "to the right" is the space motion. Thus, space, time and probability are connected.

Instead of a checker game, Dr. Smith used random walks along a line from which a point can move either right or left. When all motion is in one direction, then the highest possible velocity is reached. At this maximum velocity, the system has no dimension in the direction of motion.

Since the direction of motion can be determined at the fastest possible speed, Dr. Smith concluded that probability consists of two parts, one that can be determined (the excess of motion in one direction over the other) and one that is random (whether the motion is to the left or the right).

Science News Letter, June 18, 1955

MEDICINE

Trace Baby Death Causes

► ONE-THIRD OF the deaths of babies before and up to one month of age could be prevented, a New York Academy of Medicine committee has found.

The finding was from a special investigation of babies who died in New York City in 1950.

A new word has been coined for deaths of babies of this very early age in life. The word is perinatal, meaning literally around birth. Deaths at this age, before birth and up to one month after, have not declined in proportion to the decline of infant deaths from one month through the first year of life. For that reason, the special investigation was made.

Over half the 955 baby deaths studied could not have been prevented, the committee found.

In the others the responsibility was divided between the doctors, the hospitals and the families. A breakdown of responsibility factors is given as follows: unavoidable

disaster, 55%; errors in medical judgment, 31%; unsatisfactory pediatric care, 27%; errors in medical technique, 24%; faulty care of the mother before the baby's birth, 22%. In some cases several factors were found together, which explains why the percentages do not add up to 100.

An example of the way several factors contributed is that of the baby who died of bronchopneumonia at the age of 18 days. This infant had a slight cold when the parents took him home from the hospital against medical advice when he was three days old. The mother called the family doctor several times after she had the baby home, but he refused to come to see the child after a visit the first day the baby was home. The responsibility factors were given as intercurrent infection (the cold), inadequate pediatric care (not seen by the doctor), and family at fault (because they took the child home too soon).

The committee findings were analyzed

and reported by Dr. Schuyler G. Kohl of the State University of New York College of Medicine, Brooklyn, N. Y., in a book, *Perinatal Mortality in New York City* (see SNL June 11, p. 380).

Science News Letter, June 18, 1955

MEDICINE

Cutting Nerves Helps Childless Have Babies

► A NERVE-CUTTING operation has enabled 13 out of 14 childless women to have the babies they wanted.

Details of the operation were shown by Dr. Joseph Barnard Doyle of Boston at the meeting of the American Medical Association in Atlantic City, N. J.

AMA members also saw in Dr. Doyle's color motion picture the actual passage of an egg, or ovum, from the ovary where it is produced to the fallopian tube, which carries it to the uterus.

The film showed a previously unproved factor in the travel of the egg. This is the actual movement of the fallopian tube in grasping the ovary in order to receive the egg.

Science News Letter, June 18, 1955

MEDICINE

Drug Seen Remedy for Juvenile Delinquency

► A DRUG may prove to be the solution to the much-discussed problem of juvenile delinquency.

The drug is chlorpromazine. It has already won praise for its ability to quiet greatly disturbed mental patients so that they can be given psychiatric treatment.

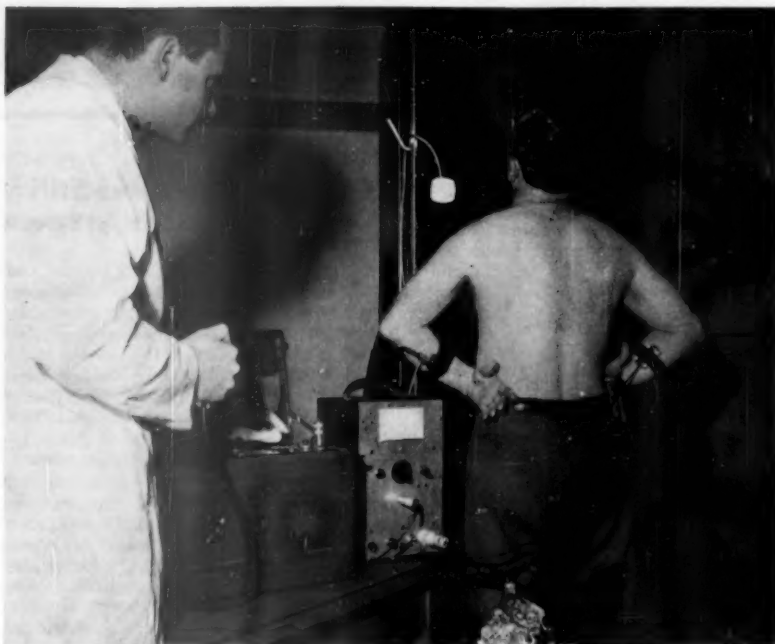
Its promise of helping solve the juvenile delinquency problem comes from that same quieting or tranquilizing action. When given to destructive, incorrigible children who seemed well on the way to becoming delinquents, the drug within one week transformed the youngsters into calm, cooperative, better behaved children who no longer resisted psychiatric efforts to help them.

These good results in 39 of 45 children were shown in an exhibit at the American Medical Association meeting in Atlantic City, N. J. The children were treated by Drs. James A. Flaherty and Robert L. Gatski at the Governor Bacon Health Center, Delaware City, Del.

The children had previously resisted all attempts to help them through psychiatric treatment, change in home environment and child guidance. Even when given barbiturate sleeping medicine they still kept their disturbed feelings and confused ideas hidden from the doctors. When given the new drug they calmed down enough to tell their troubles and get help in facing and overcoming them.

The drug is marketed in this country by Smith, Kline and French of Philadelphia under the trade name, Thorazine.

Science News Letter, June 18, 1955



SPLIT-SECOND X-RAY TRIGGER—Taking X-rays at known times in the heart's cycle is no longer a matter of guesswork. Instrument on the table, developed by National Heart Institute scientists, permits operator (left) to shoot X-ray at a precisely selected time in patient's heart beat. Better diagnosis results when such pictures, sometimes taken years apart, are made at exactly the same instant in the heart cycle.

MEDICINE

Two Zones in Heart

► **DISCOVERY THAT**, contrary to previous beliefs, the heart is composed of two zones was announced by Dr. Myron Prinzmetal and associates of Cedars of Lebanon Hospital, Los Angeles, at the American Medical Association meeting in Atlantic City, N. J.

Diagnosis of heart disease needs revision in the light of this discovery. In fact, it was because diagnoses, when made by the electrocardiograph, often differed in an "astonishing and alarming" way from the actual severity of the disease that Dr. Prinzmetal made his discovery.

For example, a man who had had six successive heart attacks and who soon died of severe heart damage never showed significant changes on electrocardiograms of his heart. The electrocardiograms had led his doctor and family to be unduly optimistic, Dr. Prinzmetal declared.

In other cases, patients showed "very alarming" abnormal changes in the electrocardiograph record and, consequently, became neurotic on the subject of their hearts, when actually they had only very mild heart trouble.

To find the reason for these discrepancies, Dr. Prinzmetal literally probed to the heart

of the matter. In a study of 12 human hearts, he explored different layers of the heart by means of special probes and examined the activity of the heart in the various layers. This was the first time the human heart had been explored in this way.

The probing was done during chest operations for such conditions as cancer of the lungs. It was completely safe.

The inner of the two zones discovered by this probing has no influence on the electrocardiogram, Dr. Prinzmetal found. Activity of the outer zone of the heart accounts essentially for all the electrocardiographic waves.

Disease involving the inner zone fails to affect the electrocardiogram, even though the degree of damage may be fatal. On the other hand, damage to the outer shell of the heart, no matter how insignificant, produces profound changes in the electrocardiogram.

The doctor's brain, Dr. Prinzmetal concluded, is "his No. 1 tool," and while the electrocardiogram is a valuable aid in diagnosing heart trouble, when it disagrees with the doctor's judgment, he should rely on his judgment.

Science News Letter, June 18, 1955

PUBLIC SAFETY

Tinted Auto Windshields Are Hazard at Night

► **TINTED AUTOMOBILE** windshields are hazards to safe night driving. A dark-clad person seen against a dark pavement at 150 feet through a clear windshield could not be spotted until 100 feet through a tinted one.

These are the conclusions of Dr. Heinz Haber of the University of California's Institute of Transportation and Traffic Engineering, Los Angeles. He analyzed visibility distances on the highway at night theoretically, but his results agree with other, experimental studies showing tinted windshields considerably reduce visibility.

Colored windshields supposedly cut down daytime as well as nighttime glare. Their "effectiveness as a protection against glare during the day is negligible," Dr. Haber's analysis showed.

Because so many things affect visibility, particularly at night, a theoretical analysis gives more "meaningful results" than experimental studies, Dr. Haber believes.

Since tinted windshields are so dangerous, "the best compromise appears to be the use of dark sunglasses for glare protection during the day." Windshields should be clear, transmitting the maximum possible light.

Even clear safety plate, he pointed out, absorbs up to 50% of the heat radiation, the "only advantage" left for using colored glass.

"Losses in visibility distances caused by commercial brands of tinted windshields amount to between nine percent and 15% at visibility distances ranging between 1,000 and 200 feet," he said in the *Journal of the Optical Society of America* (June).

Reductions as high as 30% to 45% occur for targets so closely matching the background that they can be seen only at short distances even with clear windshields.

Dr. Haber "strongly" recommended reconsideration of the present American Standard Safety Code setting 70% as the minimum amount of light windshields must transmit.

Science News Letter, June 18, 1955

ASTRONOMY

New Observatory Being Built Near Philadelphia

► **A NEW** astronomical observatory will be built on a 31-acre site about 20 miles west of Philadelphia near Paoli, the University of Pennsylvania has announced.

To be called the Flower and Cook Observatory, it will combine the functions of the University's Cook Observatory and its Flower Observatory.

Staff astronomers, using the 28.5-inch reflecting telescope, will continue research in the field of double and variable stars.

Dr. Frank Bradshaw Wood is the University's director of observatories.

Science News Letter, June 18, 1955

BIOLOGY

Sniffing Is Best For Smelling Test

► **NOTHING BEATS** a sniff for carrying air to the smelling nerves, Dr. Bernice M. Wenzel of Barnard College, Columbia University, New York, has reported.

The sniff can be any size, too, Dr. Wenzel said, if the concentration of gaseous mixture being sniffed is controlled so that the number of odorous molecules available as well as the volume of non-odorous air can be specified.

Blast and stream injection techniques have been used by scientists, including Dr. Wenzel, for measuring smell sensitivity in human beings. But Dr. Wenzel reported these are not as good as a sniff after all and she has abandoned the blast and stream techniques.

She has, however, built a "camera odorata" for testing smells and smell sensitivity. The camera consists of a Plexiglas box with a Pliofilm bottom. The person being tested puts his head through a slit in the Pliofilm. Continually flowing odor-free air surrounds his head during tests. At intervals controlled amounts of odor are added to the air in the box. The person being tested sniffs at will.

The method is simple, and even reasonably small animals can be trained to give an indicator response, Dr. Wenzel reported in *Science* (June 3).

Science News Letter, June 18, 1955

TECHNOLOGY

Electronic Thermometer Promises Great Accuracy

► **MEDICINE'S TWO** familiar trademarks, the glass thermometer and the doctor's stethoscope, are undergoing an electronic age change.

A skin thermometer that instantaneously measures change in temperature in or on the body, and a subminiature microphone that was developed to record sounds inside the human heart were demonstrated at an exhibit of things-to-come in medical detection devices in Washington.

The thermometer consists of a pencil-like probe connected to a power source and an easily readable temperature scale. When the probe is placed on the skin, the temperature is immediately read off the scale. Compared to the traditional glass thermometer, the electronic device eliminates any waiting period, the possibility of breakage and any inaccuracies in reading the temperature.

Dr. Max Greenberg, director of medical research for the Vibro-Ceramics Corporation of Linden, N. J., foresees that the skin thermometer can be made into a pocket-sized device that will be able to print a gummed label giving the date, time and temperature reading for permanent and accurate recording.

The heart microphone, described as probably the smallest operative device of its

kind, is designed to be inserted into an artery in the arm or neck and passed through to one of the heart's chambers.

A pressure-sounding measuring instrument, the microphone produces an electrical signal exactly proportional to instantaneous changes of the heart's pressure or vibration for either graphic or audible recording.

Dr. Greenberg said that the microphone provides accuracy, permanent records of heart sounds, eliminates disputes about murmurs and is a convenient probe during operations. It might also prove useful in locating gallstones, he added. When the microphone hits against stones, it makes a particular noise.

The first operating model of the microphone has been delivered to Johns Hopkins Hospital of Baltimore, Md., where studies will be made to develop its proper use.

With modification, the small internal microphone can be converted into a chest stethoscope that will provide doctors with a more accurate and handier heart detection device.

The devices are the development of three companies affiliated with Gulton Industries, Inc., of Metuchen, N. J.

Science News Letter, June 18, 1955

HORTICULTURE

Develop Rose Dusts With Multiple Protection

► **SIX ROSE** dusts have been developed that will protect garden roses from most insects, mites and plant diseases. The multipurpose, combination dusts result from five years' experimentation by government scientists at the Agricultural Research Center, Beltsville, Md.

Each of the six dusts is a mixture of insecticides, miticides and fungicides, and prevents damage by aphids, leafhoppers, spider mites, and by the plant diseases, mildew and blackspot.

Although all are still classed as experimental and not available on the market, the government scientists reported that many dust formulations now being sold could prove to be as effective if they contained similar combinations.

If used as recommended, the mixtures are harmless to both the roses and the gardener, but the scientists caution that they must not be swallowed or inhaled. They must be kept out of the reach of children and pets.

All six of the combination rose dusts contained five percent DDT and one percent lindane as insecticides and one of the following fungicide-miticide combinations:

1. 3.4% copper, 25% sulfur, 1.5% Aramite.
2. 3.4% copper, 25% sulfur, 4% malathion.
3. 7.6% ferbam, 25% sulfur, 1.5% Aramite.
4. 7.6% ferbam, 1.0% Karathane, 1.5% Aramite.
5. 6% zineb, 1.5% Aramite.
6. 6% zineb, 1.0% Karathane, 1.5% Aramite.

Science News Letter, June 18, 1955

IN SCIENCE

STATISTICS

College Graduates Still Contribute to Baby Boom

► **COLLEGE GRADUATES** are still contributing more and more to the baby boom, and college men are doing even more toward increasing the baby crop than are college girls.

This was shown by figures in *Population Bulletin* (June) collected by the "College Study" which this year has surveyed 29,494 graduates from 178 colleges.

College graduates have taken part in the upswing of the birth rate to an even greater extent than some of the traditionally more fertile portions of the population, the report of the study stated. However, they are not yet contributing their pro-rata share to the numbers of the nation's children.

That the births to college graduates are not falling off is considered by population experts to be of great national importance, because a larger proportion of children of college-educated parents go to college than of children of any other group. This is of great importance because of the growing shortage of scientific manpower.

"College graduates are, in large part, the parents of tomorrow's leaders in science, industry, and in many other fields," the report said.

Science News Letter, June 18, 1955

ELECTRONICS

Electronic "Brain" to Analyze Human Brain

► **AN ELECTRONIC** computer to analyze the rapid and complex electrical activity of the brain is being tested at the Massachusetts Institute of Technology and the Massachusetts General Hospital, Cambridge.

By automatically comparing brain waves in one short time period with those preceding them, the computer shows a time sequence of brain wave activity.

The computer displays in a new form the information in the tiny electrical impulses that are related to the nervous system's operating and controlling mechanism.

Using it, scientists hope to learn answers to such questions as: How stable a phenomenon are brain waves? Are there wave patterns which repeat periodically? If a range of normal stability for brain waves can be defined, can we then determine variations from this norm in children; in older people; in those with mental disease?

Dr. Norbert Wiener, mathematics professor at M.I.T., is largely responsible for the mathematical developments that are the basis of the method.

Science News Letter, June 18, 1955

IE FIELDS

MEDICINE

Guinea Pigs Test Polio Vaccine's Potency

▶ A NEW test for the potency of polio vaccine was revealed at the American Medical Association meeting in Atlantic City, N. J., by Dr. Albert Sabin of Cincinnati.

The test was developed by Dr. Sven Gard of Stockholm, Sweden. Dr. Gard gave Dr. Sabin permission to report it for the first time in America.

The test is made on guinea pigs. These laboratory animals are given vaccine in graded doses, each pig getting a larger one than the preceding pig. The level of polio antibodies in the animal's blood is then determined. The antibody level shows the strength of the vaccine.

Dr. Gard has found the guinea pig test reflects accurately the rise in antibody level in children following each dose of vaccine and consequently the ability of the vaccine to protect children.

Science News Letter, June 18, 1955

BIOCHEMISTRY

New Approach for Treating Liver Cancer

▶ A FRESH approach to treatment of liver cancer is foreseen from studies of the part manganese plays in cell functioning.

Dr. Lee E. Farr, medical director of Brookhaven National Laboratory, Upton, N. Y., said scientists are studying substances that deliver radioactive isotopes to a desired spot. One may some day be used to "special delivery" a killing dose of radioactivity to cancerous livers.

Dr. Laurence S. Maynard, a physiologist, and Dr. George C. Cotzias, head of the Medical Department's physiology division, studied radioactive manganese distribution in rat tissues and cells. They used manganese 56, an isotope losing half its radioactivity in 2.6 hours.

The scientists began their rat experiments by injecting radioactive manganese into the peritoneum, the membrane enclosing abdominal organs, then tracing the radioactive atoms absorbed by various organs.

The liver and pancreas took up more manganese than any other organ, they found. These two are also rich in mitochondria, the units that regulate metabolic processes inside living cells.

By separating the cell components and counting them, again with a scintillation counter, Drs. Maynard and Cotzias found that most of the radiomanganese was picked up by the mitochondria. This established that manganese has a vital role in mitochondrial function.

Meanwhile, Robert E. Bases, a New York

University School of Medicine student, and Dr. F. M. Sinex, Brookhaven medical biochemist, were studying whether organic molecules can be used as vehicles to carry metal atoms through the body better than such atoms travel alone.

They confirmed previous experiments showing that some porphyrins, which are complex pigments, tend to become associated with tumor tissue. Mr. Bases and Dr. Sinex then demonstrated the possibility of using a porphyrin molecule as an "envelope" to carry radioactive copper to an "address" where beta and gamma rays would reveal tumors.

Based on this study, Drs. Cotzias and Maynard started using organic molecules as "envelopes" to carry radioactive isotopes to "addresses" on which "cancer" is written.

Many successful experiments would have to be carried out with mice and other animals before any preliminary evaluation of this approach to treatment of human patients can be made.

Science News Letter, June 18, 1955

MEDICINE

Organize Society for Artificial Organs

▶ A NEW medical society of experts working on internal "spare parts" of the human body held its first meeting in Atlantic City, N. J.

The organization is the American Society for Artificial Internal Organs. Members are those scientists who have pioneered the development and use of such life-saving devices as artificial kidneys and heart-lung machines.

These men are widely scattered in various fields of medicine and have heretofore had no common meeting ground for presenting and discussing new work in the field and for establishing criteria for determining training and competence of those wanting to come into this field of special medical practice.

Science News Letter, June 18, 1955

MEDICINE

Technique for Learning More About Antibodies

▶ A NEW technique for studying antibodies and learning more about how these disease germ fighters are made in the body was described by Dr. T. N. Harris of the Children's Hospital of Philadelphia at the hospital's Centennial Medical Convocation.

Antibodies, he found, are formed in lymph nodes, better known to the layman as glands. In his latest studies he was able to incubate rabbit lymph node cells in the test tube with antigenic material that would stimulate antibody formation. When the cells were then washed and injected into another rabbit, this second rabbit's blood showed antibodies to the antigen with which the lymph node cells had been incubated.

Science News Letter, June 18, 1955

AERONAUTICS

New Parachute Allows Accurate Supply Drops

▶ DROPS OF military supplies can now be pin-pointed from high altitudes with a new cloth "windmill parachute" developed by Canadian scientists.

After snapping open like an ordinary chute, the mushroom begins to spin, winding up the strings and finally collapsing the parachute. It falls freely. Then the package begins to spin in the other direction because of the coiled strings, untwisting the cords until the chute opens again. The operation is timed so the mushroom opens just before the unit hits the ground.

The new supply-dropping technique is designed to prevent inaccuracy due to wind drift of the conventional slow-falling parachutes.

Dr. John Green, head of the aeronautics division of the Canadian Defense Research Board, revealing details of the parachute in Toronto, Canada, said the chute had been successful in tests and that scientists now have the timing down pat. It can go through one cycle of winding and unwinding or several, he said.

Dr. P. Mandl and H. T. Stevinson at the National Aeronautical Establishment in Ottawa developed the system.

The cloth mushroom is made of cloth strips held at an angle by the stringing arrangement, causing the spin.

Science News Letter, June 18, 1955

BIOLOGY

Germ Discovered That Feeds on Cyanide

▶ A GERM that thrives on potassium cyanide, deadly poison to man, animals and most forms of life, has been discovered.

Experiments were made at Britain's Water Pollution Research Laboratory to determine the fate of potassium cyanide in sewage being treated. This resulted in the isolation of the bacterium that was capable of growing on silica gel medium containing only the poisonous chemical as a source of nitrogen and carbon.

The scientists, G. C. Ware and H. A. Painter, found that ammonia is produced from the cyanide by the growth of the organism, but the fate of the carbon in the chemical has not yet been traced.

The organism has been provisionally classed among the *Actinomycetaceae*, the two scientists have reported in *Nature* (May 21).

The organism consists of Gram-positive branching filaments approximately a micron in diameter, some of which are broken up into bacillary segments. These grow as a hard, white and powdery colony which gets as large as a millimeter in diameter after incubation for seven days at 28 degrees Centigrade. Some of these colonies can utilize more than half a milligram of cyanide a day.

Science News Letter, June 18, 1955

METEOROLOGY

Hurricane Season Approaching

Electronic "brains" will be used for the first time this year to help predict and to track hurricane paths as the cyclonic storms near the United States.

By ANN EWING

► HURRICANES, BECAUSE of their great size and intensity, are the most destructive of all storms. This year, for the first time, a giant electronic "brain" will be used to help predict and to track hurricane paths as the tropical storms near the United States.

Last year's three great hurricanes—Carol, Edna and Hazel—killed 200 people and caused about \$800,000,000 damage to property when they battered the east coast.

This year, with funds especially appropriated by Congress, the Weather Bureau is intensifying, modernizing and streamlining its hurricane warning services to reduce death and destruction.

A radar "eye" is being installed at Cape Hatteras to spot any tropical storm within 250 miles. All hurricanes that have ripped into New England have come within radar range of Cape Hatteras.

The season for these most dangerous storms is summer and early fall, with the Gulf coast storms coming sometimes as early as late June and the ones that roar up the coast most usual after July and before November.

During that period, swirling winds born in the hot humid areas of the tropics are likely to lash out over the western North Atlantic, the West Indies, and the south and east coasts of the United States.

Hurricane Hunters Move In

High temperatures and humidity team up with converging winds in the late summer and early fall to make these superstorms. They are officially termed hurricanes when their winds exceed 75 miles per hour.

The general atmospheric conditions in which hurricanes are spawned are known. Hurricane hunters under a joint Weather Bureau, Air Force and Navy program investigate suspicious areas. Ships and aircraft in the region are alerted at the first suspicion of a hurricane.

A hurricane is powered by droplets of water giving up their heat through condensation. The earth's rotation contributes to its initial spinning and continues to do so during the storm's lifetime.

Because of this rotation, hurricanes swirl in opposite directions in the two hemispheres, counter-clockwise in the Northern Hemisphere, clockwise in the Southern Hemisphere.

For several years, hurricane hunters have flown into the center of such a storm to

learn about its course, to measure the force and directions of its winds. A more recent method is to "box" the eye, the relatively calm area at the storm's center, by flying into it from various points and out at others in order to get a picture of its structure.

Such reconnaissance flights have helped meteorologists perfect warning techniques that reduce damage and destruction considerably.

More accurate prediction of the storm's path would be possible if these flights covered more thoroughly areas farther from the eye. Dr. Herbert Riehl, meteorology professor at the University of Chicago, believes.

With William Haggard of the Weather Bureau, Dr. Riehl has worked out a five-minute method for predicting hurricane paths 24 hours in advance. First tested last year, the method will be widely used in 1955.

Dr. Gordon Dunn, chief Weather Bureau forecaster at hurricane-conscious Miami and a long-time expert on the tremendous

storms, has announced plans for using the system there.

It is the first numerical process for predicting where a hurricane's swirling vortex is headed. Using it, the forecaster has only to subtract certain numbers on an especially plotted weather map, then consult a graph to get the hurricane's motion 24 hours ahead.

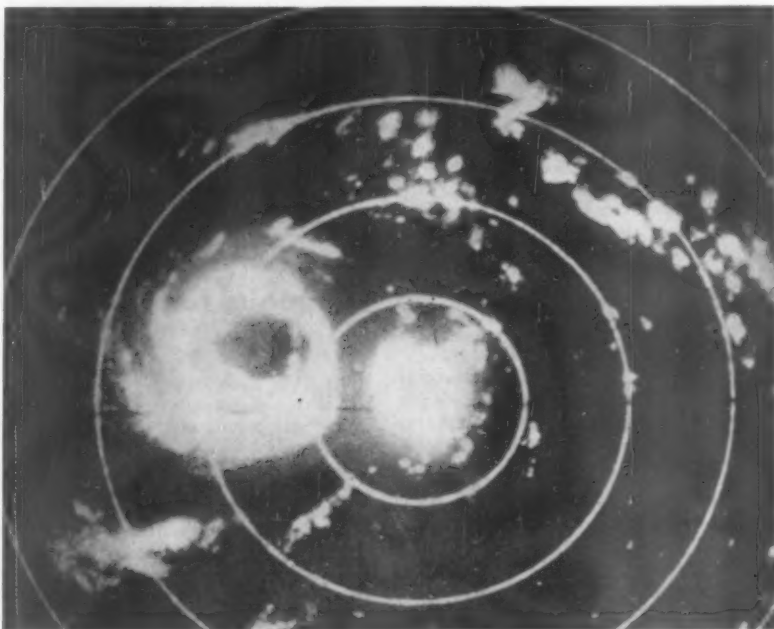
The numbers give atmospheric pressures near 18,000 feet at widely-spaced points up to 1,000 miles around the hurricane's eye. Only the area having an immediate effect upon the storm's motion is included in the forecast.

Have Many Routes

Hurricanes can take several kinds of paths, depending on the location of pressure areas in their vicinity. They tend to follow the southern and western border of the semi-permanent Atlantic high pressure area, usually centered near Bermuda.

A hurricane path is thus usually a parabola, paralleling the winds in the upper atmosphere.

The storms move like a small whirl or vortex in a stream, but the streams that carry or steer the hurricane are currents of air. One of these "steering currents" is the jet stream, a 200-mile-per-hour river of air



HURRICANE ON RADAR—How a hurricane appears on a radar scope is shown in this photograph taken as Navy reconnaissance pilots were tracking down a storm over tropical waters. Its cyclonic circulation and relatively calm "eye" are clearly portrayed in this 1953 vintage storm record.

found streaking 10,000 to 40,000 feet above the earth's surface.

In recent years, more air has been coming in from the south and from the ocean off the east coast, Jerome Namias, chief of the Weather Bureau's extended forecast section, said when asked if the east coast was likely to become a "hurricane alley."

This flow pattern "accounts for some of the milder winters we have been getting," he said, "but it is also associated with the increased vulnerability to hurricanes of the east coast north of Hatteras."

Tremendous Energies Expended

Tearing over the waters of the western Atlantic, hurricanes expend enough energy in a single day to run all the power plants in the world for several years. This tremendous energy has never been harnessed. Nor does man have much hope of ever taming the hurricane.

Concerning possible control of hurricanes, I. R. Tannehill, retired chief of the Weather Bureau's division of reporting and forecasting, said "exploding a large number of atom bombs to create a disturbance of the storm's dimensions would be more dangerous than the hurricane itself."

Dr. Robert H. Simpson, an aviation weather specialist at the Weather Bureau, estimates that a hurricane spends energy at the rate of 500 trillion horsepower, the equivalent of "several thousand atomic bombs per second."

Computers Aid Prediction

Electronic computers probably will not track the hurricane itself, because, tremendous as the energies involved are, the tropical storms are nevertheless relatively small-scale atmospheric disturbances. Particularly in their early stages, hurricanes are too small to be handled on the electronic computers under the present systems.

Predicting a hurricane's path with electronic computers would possibly work like this: First, the general overall circulation, assuming that the hurricane had no influence on large-scale air flow, would be forecast. Then the meteorologists would, by means of mathematical formulas representing the tropical disturbance, try to find where the hurricane was headed.

This process is like throwing a stick on a river, then watching how fast and where it floats and when and where it hits the bank.

A hurricane's energy thrown against coastal cities has caused great disasters, usually from the towering waves driven like a wall of water by the storm's winds.

The worst hurricane disaster in the United States claimed 6,000 lives at Galveston, Texas, in 1900. As recently as 1935, a hurricane wave drowned or killed more than 4,000 persons in the Florida Keys, and in 1938 probably caused the majority of the 600 or more deaths in the great "New England" hurricane.

In India in 1876, a hurricane produced an inundation in which more than 100,000 persons were killed.

In spite of the tremendous depths of an ocean, the waves generated by a hurricane start vibrations along its floor. These vibrations are known as microseisms and can be picked up by seismographs at distant places.

Although seismographs can detect hurricanes, using them to determine the storm's position and intensity is still the subject of research.

But many meteorologists foresee the day when radar and seismograph stations will make hurricane hunters obsolete for spotting and tracking the storms, although aerial reconnaissance would still be necessary for research on structure.

Named for Girls

Girls' names are used in naming hurricanes because they are "shorter, quicker and less confusing" than the older methods for exchanging detailed information between widely scattered points. They also reduce confusion when two or more tropical storms occur at the same time.

The need for a simple, easily understood and remembered identification for each hurricane is emphasized by the fact that one storm can prompt each day millions of telephone calls, thousands of additional news bulletins, and countless telegrams, messages, etc.

The list of girls' names selected for use this year in naming hurricanes in the Gulf of Mexico, Caribbean Sea and Atlantic Ocean is as follows: Alice, Brenda, Connie, Diane, Edith, Flora, Gladys, Hilda, Ione, Janet, Katie, Linda, Martha, Nelly, Orva, Peggy, Queena, Rosa, Stella, Trudy, Ursa, Verna, Wilma, Xenia, Yvonne and Zelda.

Alice is the only name repeated from the 1954 list. This is because 1955's hurricane Alice occurred on Jan. 2, before Weather Bureau experts had had time to draw up a new list. Another set of names for the rest of 1955's hurricanes was believed necessary because Carol, Edna and Hazel were identified with specific storms in 1954.

Science News Letter, June 18, 1955

TECHNOLOGY

Complete First Phase Of Supply DEW Line

See Front Cover

► THE FIRST phase of an Arctic airlift supplying the DEW, or distant early warning, line in Alaska is now completed.

U. S. Air Force C-124 Douglas Globemasters operated around the clock, frequently in hazardous conditions, flying supplies to the northern rim of the Alaskan Peninsula. Over 6,600 tons of tractors, buildings and other heavy equipment for the DEW line was airlifted during the operation.

One of the planes is shown on the cover of this week's SCIENCE NEWS LETTER approaching for a landing on a snow-covered landing strip, being guided by Ground Control Approach radar.

Science News Letter, June 18, 1955

SAVE ON Palley OPTICAL BARGAINS

Palley HY-POWER

100-200-300 POWER

3-TURRET MICROSCOPE

NOW ONLY \$895

Compares to instruments selling up to \$75.00



NEW

An UNSURPASSED VALUE! Has fine ground and polished achromatic lenses. Precision ALL-METAL construction. Triple revolving objective lens turret enabling selection of 100X - 200X - 300X. Has right or left hand rack and pinion adjustment for smooth, precise movement. 90° inclination. Adjustable plane sub-stage mirror. Complete in sturdy, dovetailed hardwood case. Your Satisfaction GUARANTEED!

NEW IMPORTED 1500X RESEARCH MICROSCOPE

\$18950

Compares to instruments selling up to \$2300

For BACTERIOLOGY - HISTOLOGY - PATHOLOGY BIOLOGY - BOTANY - ETC.



A top quality, professional instrument. Has a triple revolving turret with three precision ground & polished achromatic objective lenses - 10X, 40X and 100X oil immersion. Plus three Huygenian eyepieces of 5X, 10X and 15X giving up to 1500 power magnification. Has a sturdy, lifetime metal body which inclines through 90° for micro-photography. Rack and pinion control. Fine focusing adjustment. Large, 120mm x 113mm square stage which holds slides up to 3" x 2". Sub-stage has an Abbe two-lens divisible condenser with iris diaphragm and rack and pinion motion. Complete in fitted professional type carrying case with lock and key. Satisfaction GUARANTEED or Your Money Refunded!

NEW ARMY SURPLUS 178mm-f:2.5 EASTMAN CAMERA LENS

A \$300 SURPLUS VALUE

Originally designed for use on K-21 and K-24 Aerial Cameras. A genuine EASTMAN AERO EKTAR 178mm lens. Has speeds from f:2.5 to f:16. Focal length is 7". This amazing lens is NEW, in original cans. Guaranteed perfect condition. Ideal for Color or Black & White. Exceptionally good for night work or in poor light conditions. Comes with 2 filters; 1 Polarized (for haze) and 1 yellow, plus a filter adapter, **ONLY 6950** a lens heater for high altitudes and a lens dust cap. Can be adapted to 35mm cameras as well as others as a Telephoto lens (see adapter and mount listings below) . . .

SPEED GRAPHIC ADAPTERS for above lens - Includes Lens Board, Extension Tube and Bed Support.

2 1/2" X 3 1/2" \$2175 3 1/2" X 4 1/2" \$1875 4 1/2" X 5 1/2" \$1475

35mm ADAPTERS and MOUNTS for above lens

Complete - no other parts to buy. Focus from 8ft to infinity - marked on the mount.

LEICA - CONTAX S&D - EXACTA \$8950

CONTAX 2A . . . \$109.50 - HASSALBAD . . . \$139.50

Pay by M.O. or check. 1/2 deposit with C.O.D.'s. Prices F.O.B. Los Angeles.

PALLEY SUPPLY CO.

2263 E. VERNON AVE., DEPT. 14F
LOS ANGELES 58, CALIF.

Books of the Week

For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N.W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

ABSTRACTS OF TECHNICAL STUDIES IN ART AND ARCHAEOLOGY 1943-1952—Rutherford J. Gettens and Bertha M. Upton, Compilers—*Smithsonian*, 408 p., paper, \$3.00. Popular articles as well as highly technical ones are covered in this bibliography.

ANCIENT EDUCATION—William A. Smith—*Philosophical Library*, 309 p., \$3.75. Tracing the cultural and educational development of seven early peoples—the Mesopotamians, the Egyptians, the Indians, the Chinese, the Greeks, the Romans and the Hebrews.

THE BIOLOGIC EFFECTS OF TOBACCO: With Emphasis on the Clinical and Experimental Aspects—Ernest L. Wynder, Ed., with foreword by Joseph Garland—*Little, Brown*, 215 p., illus., \$4.50. An attempt to present the truth about this hotly contested subject.

CAPRICORN ROAD—Francois Balsan, translated from the French by Pamela Search—*Philosophical Library*, 252 p., illus., \$4.75. Describing a trip through a practically unexplored territory in southern Africa where observations were made of scientific interest.

CARNEGIE CORPORATION ANNUAL REPORT FOR THE FISCAL YEAR ENDED SEPTEMBER 30, 1954—Charles Dollard, President—*Carnegie Corporation of New York*, 110 p., illus., paper, free upon request direct to publisher, 589 Fifth Ave., New York 17, N. Y. Reporting on the activities of this Corporation.

CEREBRAL PALSY: Methods of Evaluation and Treatment—George G. Deaver—*Institute of Physical Medicine and Rehabilitation, Rehabilitation Monograph IX*, 57 p., illus., paper, \$1.00. Presenting the information that in the experience of the author has proved most useful in meeting the total needs of the cerebral palsied child and his parents.

CONCERNING CHRISTOPHER: Fun With a Parrot—Dorothy L. Cutting—*Exposition Press*, 42 p., \$2.50. About a pet parrot, his care and training.

THE EVER-NEARER NEAR EAST: Report on a Study Tour, With Glimpses of Greece, Turkey, Lebanon, Syria, Jordan, Egypt, and Israel—Samuel Guy Inman—*Worldover Press*, 22 p., paper, 50 cents. Telling of a trip by 22 persons

who looked not only at conventional sights, but at social, economic and international relations in a troubled part of the world.

FOOTING THE HOSPITAL BILL—Elizabeth Ogg—*Public Affairs Committee, Public Affairs Pamphlet No. 222*, 28 p., illus., paper, 25 cents. Evaluating existing voluntary prepayment plans.

GENETICS AND METABOLISM—Robert P. Wagner and Herschel K. Mitchell—*Wiley*, 444 p., illus., \$7.50. Bringing together a variety of facts from many scientific fields in an attempt to synthesize a general picture of the biochemical basis of inheritance.

HANDBOOK OF FOOD AND AGRICULTURE—Fred C. Blanck, Ed.—*Reinhold*, 1039 p., illus., \$12.50. A convenient reference work for all workers who have to do with foods.

HORIZONS OF HOPE—Alfred P. Sloan Foundation, 33 p., illus., paper, free upon request direct to publisher, 30 Rockefeller Plaza, New York 20, N. Y. Describing the animated motion picture of the same name produced by the Sloan Foundation to tell of some of the promising avenues of research on cancer, and describing progress made since the film was issued.

IMPROVING YOUR GARDEN THROUGH SOIL MANAGEMENT—Earl F. Downey—*Crown*, 250 p., illus., \$3.95. For the gardener and covering over 50 varieties of vegetables and a great number of flowers and shrubs.

INFORMATION PROCESSING EQUIPMENT—M. P. Doss, Ed.—*Reinhold*, 270 p., illus., \$8.75. Information resulting from a symposium held by the American Chemical Society.

MACHINE TRANSLATION OF LANGUAGES: Fourteen Essays—William N. Locke and A. Donald Booth, Eds.—*Technology Press of MIT and Wiley*, 243 p., \$6.00. Computer designers and electronic engineers are now engaged in erecting a new "Tower of Anti-Babel" which will serve to speed the day when all men can communicate freely together.

THE MEDICAL SIGNIFICANCE OF ANXIETY—Richard L. Jenkins—*Biological Sciences Foundation*, 46 p., illus., paper, \$1.00. For physicians who are constantly having to deal with the problem of anxiety.

THE MULTIFLORA ROSE FOR FENCES AND WILDLIFE—Wallace L. Anderson and Frank C. Edminster—*Govt. Printing Office, USDA Leaflet No. 374*, 8 p., illus., paper, 5 cents. This beautiful plant can serve to keep livestock at home and to furnish welcome cover for birds, rabbits and other kinds of wildlife. It has a new use for soil conservation.

A REAPPRAISAL OF THE FREMONT CULTURE: With a Summary of the Archaeology of the Northern Periphery—H. M. Wormington—*Denver Museum of Natural History*, 200 p., illus., paper, \$3.12. Describing what was found in an excavation on a ranch in Utah, particularly a village site where an ancient people lived in circular door-less houses which they entered through the roof.

SPECTROPHOTOMETRIC DETERMINATION OF ALIPHATIC SULFIDES IN CRUDE PETROLEUM OILS AND THEIR CHROMATOGRAPHIC FRACTIONS—Harry V. Drushel and James F. Miller—*Mellon Institute*, 7 p., illus., paper, free upon request direct to publisher, 4400 Fifth Ave., Pittsburgh 13, Pa.

SUMMER NATURE EXPLORATIONS—Eva L.

Gordon—*New York State College of Agriculture, Cornell Rural School Leaflet, Volume 48, Number 4*, 32 p., illus., paper, 10 cents. Suggestions of what to do on your summer vacation that will be of scientific interest.

THERMODYNAMICS: From the Classic and Generalized Standpoints—Joseph Louis Finck—*Bookman Associates*, 224 p., illus., \$7.50. Presenting in unified form the author's own work in thermodynamics.

UNDERWATER SPORT—Albert VanderKogel and Rex Lardner—*Henry Holt*, 188 p., illus., \$3.50. Describing the strange world under the surface of the sea and what can be learned there.

THE UNITED NATIONS AND HOW IT WORKS—David Cushman Coyle with an introduction by Ahmed S. Bokhari—*New American Library*, 208 p., paper, 35 cents. To give an understanding of this means by which men of many nations attempt to achieve world peace.

WHAT IS POPULARITY?—Mary L. Northway—*Science Research Associates, Better Living Booklets*, 47 p., illus., paper, 50 cents. Discussing why children are liked by other children and how parents and teachers can help them grow in popularity.

Science News Letter, June 18, 1955

MEDICINE

Women's Cosmetic for Jeep Disease Treatment

► THE COSMETIC preparations women use to remove superfluous hair might help speed recovery from jeep disease. This is the slow-healing painful infection at the base of the spine which thousands of World War II soldiers developed from riding in jeeps. Doctors called it pilonidal sinus.

The idea of trying depilatories, as the hair removers are known, comes from Dr. Shields Warren, radiologist at New England Deaconess Hospital, Boston. He suggested their use instead of X-rays to remove hair near the base of the spine. X-rays to this area so near the reproductive organs might, Dr. Warren warned, lead to temporary or permanent sterility.

He made the suggestion to Drs. Neil W. Swinton and Robert K. Wise of the Lahey Clinic, Boston. They were using X-rays to destroy hair in the area affected by jeep disease and so give the infection time to heal.

In their opinion, the trouble comes when hairs break off on the surface of the skin and are driven inward by repeated blows at the base of the spine like those encountered in riding in a jeep.

Formerly it was thought the condition was a congenital defect in which the skin failed to close completely at the back before a baby was born. According to this theory, a small sac of skin grew inward and became filled with hair that normally should have been on the outside of the body.

Drs. Swinton and Wise report excellent results when the extra hair in the area is temporarily removed after which a minor operation is performed to clean up the infection and healing progresses rapidly.

They reported their methods and theory at the meeting of the American Proctologic Society in New York.

Science News Letter, June 18, 1955

LINGUAPHONE for LANGUAGES

FRENCH, SPANISH, GERMAN, JAPANESE, ITALIAN, RUSSIAN, PORTUGUESE, MODERN GREEK
any of 32 languages available

With Linguaphone's Recorded Conversational Method you can LISTEN and LEARN a language in 20 minutes a day. AT HOME you hear native men and women speak, you listen—you Understand, YOU SPEAK! Used by schools, governments, Armed Services and business firms. A million home-study students of all ages. WRITE TODAY for FREE Book, "Passport to a New World of Opportunity."

LINGUAPHONE INSTITUTE
31-065 Radio City, New York 20, N. Y.
Please send me your FREE Book.
Language Interest
NAME
ADDRESS
CITY Zone STATE
Leaders for Over 50 Years in Up-to-Date Modern Language Courses

PUBLIC SAFETY

Larger Air Raid Pantry

► **SURVIVORS** OF an atomic or hydrogen bomb attack in the United States may have to spend a week underground.

This new estimate was suggested in a new publication, *Facts About Fallout*, issued by the Federal Civil Defense Administration. One of the recommendations for survival calls for a seven-day supply of B-rations, emergency food and water for storage in home shelters.

Previously, civil defense officials had recommended only a three-day post-bomb survival pantry.

Now, however, they feel that a larger bomb would contaminate a larger area. In this case, it would take a longer time for decontamination crews and evaluation parties to survey the area to determine whether it is safe enough for persons to come above ground.

Seven days is almost a maximum estimate, civil defense officials told **SCIENCE SERVICE**, for the time needed to be spent underground might be considerably less.

Not every minute of the danger time after an explosion will have to be spent in the shelter, they point out. Survivors can come up for air for periods of ten minutes or more for a total of an hour or two a day. It is even hoped that they will be able to clear some debris or wash some of their

house during their above-ground time. The pamphlet warns persons not to become discouraged nor panicky.

Fallout, it reports, is nothing more than particles of matter in the air, made radioactive by A-bomb or H-bomb explosions. Radioactivity is nothing new and the whole world is radioactive. Normal amounts of radioactivity are not dangerous. It is only when radioactivity is present in highly concentrated amounts, such as created by A-bomb and H-bomb explosions that it becomes dangerous.

"If you are exposed to it long enough, it will hurt you! It may even kill you!"

You cannot hear, taste, touch and often cannot even see radioactivity fallout.

The FCDA suggests four rules for survival:

1. Prepare a shelter area where you live in the city or country.
2. Stock your shelter with a 7-day supply of water and food.
3. Get a radio and listen to the Civil Defense Conelrad frequencies for news and instructions.
4. If you think you have been in a serious fallout area, remove and wash your outer clothing. Wash the exposed parts of your body.

Science News Letter, June 18, 1955

MEDICINE

Plant Drug for Heart Ill

► **HOPE THAT** a new food supplement will prove a remedy for patients with heart trouble and some kinds of artery disease and high blood pressure is seen in studies reported to the American Medical Association in Atlantic City, N. J. The supplement is already taking the place of the rigid fat-free diet many patients have to follow.

The food supplement is a plant chemical called sitosterol. It corresponds in plants to the fatty chemical, cholesterol, in animals. It can prevent absorption of cholesterol because it combines with cholesterol to form a mixed crystal. This crystal is not absorbed by the body. Consequently patients can eat a normal diet while taking sitosterol without danger of having cholesterol deposited in plaques that clog their arteries.

The dangerous cholesterol plaques in arteries feature the serious ailment, atherosclerosis, which the layman calls hardening of the arteries.

Sitosterol prevents this condition in rabbits, chickens and dogs fed a high cholesterol diet. In humans it reduces the cholesterol in the blood 15% in about eight of 10 patients.

The chemical is a tasteless white powder given in a thick fluid called a suspension. It can be flavored to make it palatable. Pa-

tients take a tablespoonful with each meal.

Sitosterol is found in all plant foods, from vegetable oils to cereal grains such as wheat and corn. Normally we get a little of it in our daily food. But to keep cholesterol from being absorbed from the digestive tract, sitosterol is given in 10 to 12 times the amount daily that would be eaten in food.

Long-time studies are now under way to see whether, besides preventing cholesterol absorption, sitosterol will also remove the accumulations of it in artery walls in patients who have angina pectoris and blood vessel disease.

Sitosterol is not yet on the market, partly because it has not yet had enough testing on patients and partly because of the supply problem. It has been given to enough people to show that it is safe and has no side effects. And the supply problem is about to be solved since the discovery that it can be extracted from the residue from wood used to make kraft paper sacks.

The work with it was reported by Dr. R. E. Shipley of Eli Lilly and Company, Indianapolis.

Science News Letter, June 18, 1955

Changes in tin and lead content can be used to date illegible, ancient Greek coins.

• RADIO

Saturday, June 25, 1955, 5:00-5:15 p.m. EDT
"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Dr. Wallace R. Brode, associate director, National Bureau of Standards, will discuss "Uncle Sam's House of Science."

MEDICINE

Women, Babies Should Get Polio Vaccination

► **VACCINATE ALL** child-bearing women against polio. Vaccinate all babies in their first year of life. That would be the ideal way to prevent infantile paralysis in everyone in the future, Dr. Jonas E. Salk of the University of Pittsburgh declared at the meeting of the American Medical Association in Atlantic City, N. J.

Children who have had their first shot of polio vaccine but have had to wait or are still waiting for the second shot have protection that will last up to 30 months.

This reassurance was also given by Dr. Salk on the basis of his own studies in the past few years.

Dr. Salk sees no danger of paralytic polio developing in children who have had the first vaccine shot and who get the second shot during the epidemic season in mid- or late summer. The reason is that there is no polio virus in their blood after the first shot.

Danger of paralytic polio developing from any kind of shots when given during the polio season depends on the presence of polio virus in the child's blood. Such virus may be present in the blood even when no symptoms of disease exist.

Science News Letter, June 18, 1955

NICE CAR

Wipe it off every nice day with a \$2 Kozak Auto Dry Wash Cloth and you'll NEVER have to hose it. KOZAK will even DRY wash a nice car that is so dirty you can hardly tell the color of the paint. Been doing it for 29 years now... for people whose cars are ALWAYS clean... this \$2 investment will return you fifty in car wash savings. And has been so Guaranteed to 10 million buyers since 1926. Mail coupon to:

The ORIGINAL
KOZAK
Auto DRY wash

© KOZAK, 181 S. Lyon St., Batavia, N. Y.

Please send me POSTPAID:

SUPER \$3 Kozaks
(Lasts 4 Times Longer)

REG. \$2 Kozaks
(Millions Use Them)

☐ 1 for \$3
☐ 2 for \$5

☐ 1 for \$2
☐ 3 for \$5

☐ CASH

☐ CHECK

AGRICULTURE

Kansas Imports Show New Sheep Disease

► A SHEEP disease, never before reported in North America, has been found in the blood of animals shipped to Kansas from Wyoming, Colorado and Montana.

Conclusively identified as "anaplasma ovis," treatment of the disease has not been attempted as it is not fatal in sheep. A similar strain, however, is fatal to cattle, but scientists state that the sheep disease is not transmissible to cattle.

The disease, identified by Dr. Earl J. Splitter, a pathologist at Kansas State College's School of Medicine, has been found before in the sheep of Mediterranean countries. Dr. Splitter said that the strain found in American sheep for the first time will probably be susceptible to the same treatment as the organism found in cattle.

Science News Letter, June 18, 1955

OCEANOGRAPHY

Three-Peaked Mountain Discovered in Atlantic

► A THREE-PEAKED mountain has been discovered rising from the Atlantic Ocean's floor near Bermuda, two scientists from Lamont Geological Observatory, Palisades, N. Y., have reported.

Found during a cruise of the United States submarine USS Toro, the third peak is named Toro Seamount. With the double-peaked Seamount George, it forms an L-shaped mountain with a broad face at least ten miles in length toward Bermuda.

Toro Seamount's peak is 5,880 feet below the ocean surface, Drs. J. Lamar Worzel and G. Lynn Shurbet observed. It towers 1,380 feet over Seamount George, discovered by Drs. John Northrop and Robert A. Frosch of Columbia University's Hudson Laboratories.

The peaks are conical, probably resulting from extinct volcanoes erupting within the last 50,000,000 years. Echo-sounding equipment was used to locate Toro Seamount, Drs. Worzel and Shurbet report in the *Bulletin of the Geological Society of America* (April).

Science News Letter, June 18, 1955

YOUR SKIN AND ITS CARE

By H. T. Behrman, M.D., and O. L. Levin, M.D.

Two dermatologists give you the up-to-date scientific facts. They tell you in detail exactly what to do to beautify and improve your skin, how to avoid or correct skin disorders, and how to deal with many skin problems as: Daily care of the face—acne—cosmetics—pimples—blackheads—acne—whiteheads—cracks—boils—oily skin—dry skin—chapping—poison ivy—cold sores—hives—superfluous hair—ringworm—piles—birthmarks—scars—warts—tumors—skin cancer—excessive sweating—etc.

"The type of book to which the physician can refer his patients." — *Journal of the American Medical Association*.

"Accurate, unvarnished story of practical skin care." — *Connecticut State Medical Journal*.

Price \$3 incl. postage, 5-day Money-Back Guarantee

EMERSON BOOKS, Inc., Dept. 486-K
251 West 10th Street, New York 11

ZOOLOGY

NATURE RAMBLINGS



Wildcats

► THE TWO principal members of the cat family that run wild in this country are the lynx, variously known as wildcat and bobcat, and the larger animal called in various regions cougar, puma, mountain lion, panther and painter—the last name being a corruption of panther.

Up in Canada, and coming down occasionally into the northern border country, is a second species of lynx, larger and more formidable than the common wildcat. Many naturalists subdivide the lynx genus into a larger number of species.

Though smaller than the cougar, the lynxes look meaner and are meaner by na-

ture. Their rough fur and their suggestion of a leonine mane give them a really formidable appearance, and hunting dogs are wise when they avoid too rash an attack on a bayed lynx.

For all his hard-fighting disposition, the lynx or wildcat does not raid farmyards except in wild country, when he may occasionally help himself to the poultry.

The cougar or mountain lion, however, though less courageous than the lynxes, is a much more formidable killer of domestic as well as wild animals, and is heartily hated by all western stock men and by the government rangers who have custodianship of the game herds in the national parks and forests.

He has learned, too, that he is remorselessly hunted, which has made him wary about returning to a kill for a second meal, so that the cougars now left unkillable are more destructive than ever.

Cougars have an intense curiosity about man and his works. Frequently one will lie motionless on a tree or rock overhanging a road while his enemy, the hunter, passes below. The blood-curdling tales of man-killing cougars, however, have to date gone wholly without confirmation. Those who know them best state that they are, on the contrary, most arrant cowards.

Neither the cougars nor the lynxes are often seen in our great western parks, although evidences of their presence are sometimes found. While complete extermination of members of the wildcat family is not desirable, any great abundance of them should be discouraged.

Science News Letter, June 18, 1955

MEDICINE

Protons Treat Cancer

► PROTONS, THE cores or hearts of hydrogen atoms, have now been used with good results in treating 14 patients with advanced cancer of the breast, Dr. John H. Lawrence, director of the Donner Laboratory of Medical Physics at Berkeley, Calif., announced at the meeting of the American Medical Association in Atlantic City, N. J.

The protons were beamed from the synchrocyclotron, a super atom smasher. This proton beam, unlike X-rays or gamma rays from radium, does not scatter. It remains narrow and can therefore be used for pinpoint irradiation of very small targets deep within the body. A further advantage is that its dose becomes four times more powerful within the body than at the surface.

The cancer patients had the proton beam directed at their pituitary glands deep within their heads. The object of the treatment was to depress gland functions that might have stimulated the cancer's spread.

All 14 patients treated so far showed the hoped-for changes, though they had previously not improved under other kinds of treatment.

"Whether or not there will be a practical

application of this beam in therapy of cancer or other conditions by this form of selective irradiation cannot be estimated until we have had an opportunity to observe these patients for another two or three years," Dr. Lawrence said.

Science News Letter, June 18, 1955

MEDICINE

Set Up Agency to Test Anti-Rheumatic Drugs

► A NEW agency for testing drugs reported to have anti-rheumatic effects has been organized under the auspices of the Arthritis and Rheumatism Foundation.

It will be known as CENTA, the initials of Committee for Evaluation of New Therapeutic Agents. Dr. John Lansbury, Philadelphia, chairman, said that 26 arthritis clinics in 12 states have already agreed to take part in the work of CENTA.

Plans and steps already taken were described by Dr. Lansbury at the meeting of the American Rheumatism Association in Atlantic City, N. J.

Science News Letter, June 18, 1955

MEDICINE

How Polio Attacks Body

► **POLIO INFECTION** develops in the body by a process of evolution, in the opinion of Dr. Harold K. Faber of Stanford University School of Medicine, San Francisco.

Dr. Faber traced this evolution in a report at the Centennial Medical Convocation of the Children's Hospital of Philadelphia somewhat as follows:

The polio virus enters the body by way of the mouth rather than through the nose from the air. From this it is excreted through nerves into the throat and intestines. This is followed by reinfection and re-excretion on an expanding scale. Finally the virus is absorbed through lymph vessels into the blood, thus producing viremia, or blood stream infection.

Invasion of the central nervous system occurs in two ways, Dr. Faber holds. One is by passage from infected nerve cell bunches, called ganglia, through their incoming nerves.

The other is by way of the blood.

"Infection of the great nervous centers may stop before paralysis begins," Dr. Faber said, "or it may cause paralysis in various degrees, some of which are slight and transient, some severe and permanent, depending on whether the motor nerve cells are reversibly affected or actually destroyed."

"In cases with no symptoms at all, which are very common, and in those with mild, non-paralytic symptoms, the disease is checked in its earlier stages of evolution."

"Immunity from previous exposure, from gamma globulin or from vaccination may entirely prevent infection, or may stop its spread before serious damage occurs."

A different theory, with which Dr. Faber does not agree, is that the polio virus is basically extraneural and first implants itself on the mucous membranes of the throat and intestine, infecting nerve cells only secondarily.

Science News Letter, June 18, 1955

MEDICINE

Nurse Baby If Possible

► **BETTER NURSE** the baby if you can. This advice to mothers can be deduced from a report by Dr. Paul Gyorgy, professor of pediatrics at the University of Pennsylvania, at the Centennial Medical Convocation of the Children's Hospital of Philadelphia.

True, Dr. Gyorgy stated that cow's milk may be used successfully for infant feed-

ing. In fact, he said, with good care to avoid germs, "it is difficult to do harm to a normal infant kept on any feeding scheme, provided the scheme covers the minimal requirements for all essential nutrients."

Infants fed human milk, however, "distinguish themselves" in at least two respects from babies fed cow's milk. First, Dr. Gyorgy said, breast feeding reduces both the sickness and mortality rates. Under poor or less than the best hygienic conditions, these differences become more marked.

Second, infants fed human milk get more of a growth factor for an intestinal tract organism called *Lactobacillus bifidus*. Discovery of the high growth activity for this organism in human milk has led to discoveries of many chemical differences between human and cow's milk. For example, human milk contains about 40 times more gynaminc acid than cow's milk.

Characteristic building stones found in human blood group substances are other chemicals found in human milk.

The value of these and other chemicals in human milk for the baby's nourishment and health has not yet been determined. But Dr. Gyorgy thinks more attention should be paid to the chemicals in human milk from the standpoint of infant feeding.

Science News Letter, June 18, 1955

A camera that takes pictures at a rate of 2,000,000 per second with a one ten-millionth of a second exposure has been developed for recording high speed phenomena.

MEDICINE

X-Rays of Chest Show Intestinal Disorder

► **X-RAYS OF** the chest and sacroiliac joints can help detect a disorder of the intestinal tract known as Whipple's disease, Drs. William R. Eyler and Howard P. Daub of the Henry Ford Hospital, Detroit, reported at the meeting of the American Medical Association in Atlantic City, N. J.

The disease is one in which fat is not properly handled in the body. Diarrhea, a peculiar type of arthritis, emaciation and loss or strength are features of the disease.

Science News Letter, June 18, 1955

CHEMISTRY

Molecular Size And Shape Important

► **IN LIVING** systems, the size and shape of molecules in a chemical compound may be more important than their composition.

This is the finding of Prof. Herbert C. Brown of the department of chemistry at Purdue University, Lafayette, Ind.

Germes that need a certain acid in order to grow and multiply will accept in its place a chemical that contains different elements but has the same molecular shape. That is how sulfanilamide works.

Its molecule has the same shape as the molecule of para-aminobenzoic acid, and germs, lacking a modern chemical education, accept it in place of the acid. This blocks the germs' metabolism, and the body, through its defenses against disease, has an opportunity to rid itself of the germs.

In insecticides, the same principle holds. DDT was thought to be effective against insects because of its chlorine content. When another compound that had the same shape as the DDT molecule but no chlorine was tried, it also was a powerful insecticide.

Working with highly reactive chemicals inside a high vacuum system, Prof. Brown is measuring the effects of differences in molecular shape on the heat of chemical reactions. Ultimately, he hopes to come up with a formula that expresses this theory precisely, so that chemists will have a new tool with which to predict possible uses of various chemicals.

Science News Letter, June 18, 1955

Questions

BIOCHEMISTRY—What are mitochondria? p. 393.

□ □ □

MEDICINE—What drug holds promise of solving juvenile delinquency problems? p. 390.

□ □ □

METEOROLOGY—How do scientists make miniature tornadoes? p. 388.

□ □ □

PSYCHOLOGY—What are reasons for not promoting a promising young man to an executive position? p. 388.

□ □ □

PUBLIC SAFETY—Why are tinted automobile windshields hazardous? p. 391.

□ □ □

Photographs: Cover, U. S. Air Force; p. 387, Convair; pp. 389 and 394, U. S. Navy; p. 391, National Heart Institute; p. 400, Winro, Inc.

STAR DUST COLLECTION

15 Semi-Precious Stones, polished on one side and showing the beautiful colors of our native stones. In compartment box 9 x 12 x 1". \$8.00 prepaid. Booklet, Introduction to Geology for the Layman, 50¢.

Catalogue 50g

ECKERT MINERAL RESEARCH

Prospector Supplies

Dept. SNL

110 E. Main St.

Florence, Colorado

• New Machines and Gadgets •

For sources of more information on new things described, send a self-addressed stamped envelope to SCIENCE SERVICE, 1719 N St., N.W., Washington 6, D. C., and ask for Gadget Bulletin 783. To receive this Gadget Bulletin without special request each week, remit \$1.50 for one year's subscription.

✿ **FOOD STRAINER** and washer for the homemaker is a plastic device that has two basket-like halves, hinged together at one side. Flexible and unbreakable, the strainer weighs only a fraction of a pound. It can also be useful as a wool holder or crocheting bag.

Science News Letter, June 18, 1955

✿ **AUTOMATIC RECORD-CHANGER** plays an intermixed stack of 7-, 10- or 12-inch records automatically. Turntable speeds of 33 1/3, 45 or 78 rpm are maintained within narrow limits. The speed control knob also has a neutral position to protect the idler wheel when the changer is not in use.

Science News Letter, June 18, 1955

✿ **VOLTAGE REGULATOR** measures four by four by four inches. An instrument to be regulated is plugged into the outlet in the rear of the midget transformer, and the controller connected to a nearby power line. Rated at 1.25 amperes, it is adjustable from 0 to 120 volts when the input is 115-volt 50/60 cycle a-c.

Science News Letter, June 18, 1955

✿ **PORTABLE COOKER** for picnics and Sunday trips is an inexpensive and disposable barbecue pit. Complete with ex-



celsior for getting the fire started, enough charcoal for an hour's burning and its own grill, the asbestos, aluminum foil cooker, shown in the photograph, can be thrown away after the meal is cooked.

Science News Letter, June 18, 1955

✿ **MATHEMATICAL CHARTS** for students, engineers and bankers, consist of a log scale superimposed diagonally upon a log-log grid. One chart includes scales for multiplication and division as well as for square root, cube root and logarithms. Another chart has multiplication and division scales only. Charts may soon be available for the blind.

Science News Letter, June 18, 1955

✿ **TOY ROCKET** for space-minded youngsters is jet-propelled more than 300 feet into the air by water, used as fuel. Molded entirely of plastic, the rocket is prepared for launching by filling it one-third full of water. An injection pump is attached and when the trigger is released, compressed air forces the water out, propelling the toy.

Science News Letter, June 18, 1955

✿ **FISHING BASKET** imported from France is made of rustproofed steel mesh with a ring framework that permits extension to a depth of 20 1/4 inches. Trap door prevents fish from escaping while basket is submerged. Basket opening is six inches in diameter.

Science News Letter, June 18, 1955

✿ **MAP HOLDER** for motorists can be mounted on the sun visor of car or truck and rolls up and down like a window shade. Capable of holding up to five maps, it is designed for the standard 18-by-29-inch maps available at gas stations.

Science News Letter, June 18, 1955

An extra fillip for every week . . .

SCIENCE NEWS LETTER for BIRTHDAYS
ANNIVERSARIES
HOLIDAYS
THE RIGHT PRESENT
FOR PEOPLE WITH INTELLECTUAL CURIOSITY

When you need the right present for the right person, give **SCIENCE NEWS LETTER**. Put the name of that special person on the coupon below and mail it to us today. We shall send a gift announcement card signed with your name as imprinted at the left.

SEND GIFT SUBSCRIPTIONS TO:

Name _____

Address _____

City _____ Zone _____

State _____

☐ I enclose \$5.50

☐ Please bill me later

Mail to Science News Letter, 1719 N Street, N.W., Washington 6, D. C.

Do You Know?

Radioactive arsenic is being used successfully to locate brain tumors.

Today only about one-quarter of those afflicted by cancer survive the disease.

More than one-fourth of the families living on farms in the United States have cash incomes of less than \$1,000 a year.

About two and a half tons of diamonds are mined each year; one-half ton is of gem quality and the rest is used in industry.

The total world energy demand will at least double in the next 25 years, and between 1980 and 2000 it will double again, experts estimate.

Ever since algae became recognized as a possible source of food, investigators have been seeking ways to mass produce these organisms.